



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER OF PATENTS AND TRADEMARKS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/557,164	04/25/2000	William J. Dally	2789.2004-001	9280

21005 7590 06/05/2003

HAMILTON, BROOK, SMITH & REYNOLDS, P.C.
530 VIRGINIA ROAD
P.O. BOX 9133
CONCORD, MA 01742-9133

EXAMINER

BAYARD, EMMANUEL

ART UNIT

PAPER NUMBER

2631

DATE MAILED: 06/05/2003

3

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/557,164

Applicant(s)

DALLY ET AL.

Examiner

Emmanuel Bayard

Art Unit

2631

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 25 April 2000.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-66 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-66 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

Art Unit: 2631

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371© of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) do not apply to the examination of this application as the application being examined was not (1) filed on or after November 29, 2000, or (2) voluntarily published under 35 U.S.C. 122(b). Therefore, this application is examined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

2. Claims 1-4, 7-8, 11, 18-20, 23, 24, 33-36, 39-40, 43, 50-52, 55-56, 65-66 are rejected under 35 U.S.C. 102(e) as being anticipated by Kermani et al U.S. Patent No 6,275,068.

As per claims 1, 33 and 65 Kermani et al teaches a data transmitter comprising: a data input (see figs 1, 2 elements 12 or 14 or 22 or 24 or EN1-EN4 and col.3, lines 25-67 and col.4, lines 39-52); plural delay elements applying different delays to the data input in parallel to provide plural delayed data signals (see fig.2 elements 45 , 47 and col.1, lines 65-67 and col.2, lines 11-25

Art Unit: 2631

and col.4, lines 25-28 and col.5, lines 24-27); a data output adding or couple together is considered as the claimed (combining) the delayed data signals (see fig.2 elements 55 or 62 and col.4, lines 34-5 and col.5, lines 16-17, 34-36). Note that each delay stages 71a-74a and 75a-78a receive as inputs EN1-EN4 (data input) and clock signals CLKIN037 and CLKIN0 39 respectively (see fig.2 and col.4, lines 38-60 and col.5, lines 40-60). When the delay stage is enable a clock signal will pass therefore generating a time period which is considered as the claimed (transition time a transition time of the data output being determined by difference in delays applied to the data input).

As per claims 2, 34 the data transmitter of Kermani does include parallel delay connected in series (see col.1, lines 65-67 and col.2, lines 1-2).

As per claims 3, 35 the data transmitter of Kermani does include a clock signal applied the delay elements and different delays and applied to the data input (see fig.2 element CLCKIN0 or CLKIN1).

As per claims 4, 8, 20, 24, 36, 40, 52 and 56, the data transmitter of Kermani inherently includes a plural driver circuits.

As per claims 7, 39 the data transmitter of Kermani does include parallel data input (see figs. 1 and 2).

As per claims 11, 43, the data transmitter of Kermani inherently includes data output is proportional to bit time.

Art Unit: 2631

As per claims 18, 50 and 66, Kermani teaches a data transmitter comprising: a data input (see figs 1, 2 elements 12 or 14 or 22 or 24 or EN1-EN4 and col.3, lines 25-67 and col.4, lines 39-52); a bit clock (see figs. 1 and 2 element CLKIN0 or CLKIN1 and col.2, lines 61-67); a programmable clock delay (see figs. 1, 2 element 30 and col.2, lines 58-60 and col.4, lines 11-67 and col.5, lines 1-67) is considered as the claimed (transition time control) for receiving the data input and providing a controlled data signal, the transition time control controlling the transition time of the controlled signal to be proportional to bit time of the bit clock . Note that each delay stages 71a-74a and 75a-78a receive as inputs EN1-EN4 (data input) and clock signals CLKIN037 and CLKIN0 39 respectively (see fig.2 and col.4, lines 38-60 and col.5, lines 40-60). When the delay stage is enable a clock signal will pass therefore generating a time period which is considered as the claimed (the transition time control controlling the transition time of the controlled signal to be proportional to bit time of the bit clock).

As per claims 19 and 51, the data transmitter of Kermani does include a clock signal applied the delay elements and different delays and applied to the data input (see fig.2 element CLKIN0 or CLKIN1).

As per claims 23 and 55 the data transmitter of Kermani does include parallel data input (see figs. 1 and 2).

Art Unit: 2631

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 5-6, 9-10, 12-17, 21-22, 25-32, 37-38, 41-42, 44-49, 53-54, 57-64 are rejected

under 35 U.S.C. 103(a) as being unpatentable over Kermani et al U.S. Patent No 6,275,068 B1 in view of Bae U.S. Patent No 6,242,960 B1.

As per claims 5, 9, 21, 25, 37, 41, 53 and 57 Kermani et al disclose all the features of the claimed invention except each delay having CMOS invertors.

Bae teaches delay having CMOS invertors (see fig.1 elements 146-158 and col.3, lines 17-18, 45-48).

It would have been obvious to one skill in the art to incorporate the CMOS invertors of Bae into Kermani as to invert the phase of the reference clock signal as taught by Bae (see col.3, lines 36-37).

As per claims 6, 10, 22, 26, 38, 42, 54 and 58, the transmitter of Bae does includes a loading device which is functionally equivalent to the claimed (load capacitance) (see col.4, lines 47-60). Furthermore implementing such loading into Kermani would have been obvious to one of ordinary skill in the art as to control the provided power supply into the transistors.

Art Unit: 2631

As per claims 13, 16, 28, 31, 45, 48, 60, 63 Kermani et al disclose all the features of the claimed invention except a circuit to control power supply voltage to the delay elements, the circuit comprising: a first and second delay elements, each receiving a common clock signal and a phase comparator which compares the outputs of the first and second delay elements and control a supply voltage applied to the first and second delay elements to control phase difference of the outputs.

Bae teaches a circuit to control power supply voltage to the delay elements (see fig. 1 element 130), the circuit comprising: a first and second delay elements (see fig.1 elements 144, 154), each receiving a common clock signal (see fig.1 element BCLK) and a logic unit is considered as the claimed (phase comparator) (see fig.1 element 162) which compares the outputs of the first and second delay elements and control a supply voltage applied to the first and second delay elements to control phase difference of the outputs (see col.3, lines 65-67 and col.4, lines 11-16 and col.5, lines 43- col.6, lines 1-13).

It would have been obvious to one skill in the art to implement the circuit of Bae into Kermani as to generate a pulse signal which is activated in response to a rising edge of the first delayed clock signal and deactivated in response to the falling edge of the second delayed clock signal as taught by Bae (see col.5, lines 45-50).

As per claims 12, 15, 27, 30, 44, 47, 59, 62, the circuit of Bae does include a supply voltage (see fig.2 elements VSS or Vdd or Vref). Furthermore implementing such voltage to

Art Unit: 2631

control the delay elements into Kermani would have been obvious to one skilled in the art as to monitor when the level of external clock signal falls below the level of the reference voltage.

As per claims 14, 17, 29, 32, 46, 49, 61 and 64, the transmitter of Kermani does include a first and second delay elements having a sequence of n elements and a clock signal frequency (see fig.2).

Conclusion

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Brown et al U.S. Patent No 6,239,627 B1 teaches a clock multiplier.

Okajima et al U.S. Patent No 6,114,890 teaches a skew-reduction circuit.

Saeki U.S. Patent No 6,075,395 teaches a synchronous delay circuit.

Saeki U.S. Patent No 6,275,547 B1 teaches a clock recovery circuit.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Emmanuel Bayard whose telephone number is (703) 308-9573. The examiner can normally be reached on Monday-Thursday from 8:00 AM - 5:30 PM. The examiner can also be reached on alternate Fridays.

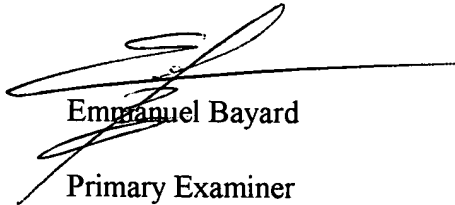
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chi Pham, can be reached on (703) 305-4378. The fax phone number for this Group is (703) 872-9314.

Application/Control Number: 09/557,164

Page 8

Art Unit: 2631

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 305-3800.



Emmanuel Bayard
Primary Examiner

May 30, 2003